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ABSTRACT

The study examined the effects of an advance organizer on the learning and retention of facts and concepts obtained from a sound film by educable mentally retarded (N=30) and regular children (N=30) in a mainstreamed secondary public school class. Also examined was the interaction between the advance organizer and ability levels of the Ss. Results indicated facilitative effect of the advance organizer for both groups; however, ability levels did not differentially affect the learning outcomes. The implications for teachers in the mainstreamed class include the desirability of teachers previewing advance organizers of films rather than previewing the film in its entirety. References and data tables are appended. (Author/CL)

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Advance Organizer Strategy for Educable Mentally Retarded and Regular Children

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ABSTRACT

This study examined the effect that an advance organizer had on the learning and retention of facts and concepts obtained from a sound film by the educable mentally retarded (N=30) and regular children (N=30) in a mainstreamed secondary public school class. This study also examined the interaction between the advance organizer and ability levels of the subjects. Results indicated facilitative effect of the advance organizer for both groups; however, ability levels did not differentially affect the learning outcomes. The implications for teachers in the mainstreamed class were discussed.

NOTE: The earlier version of this manuscript has been presented at the International Special Education Congress held from July 16-19, 1985 at the University of Nottingham in Nottingham, England.

Advance Organizer Strategy for Educable Mentally Retarded and Regular Children

The process of designing and utilizing instructional films incorporates a variety of strategies. The strategies range from changing the behavior of the learner to changing the film structure (Michael & Maccoby, 1953; Newren, 1974). The function of these strategies is to direct attention of the learner to the specific film content. These techniques work with varying degrees of success when the instructor has previewed the film in question. These procedures are not always possible with the present day demands on the instructor and the requirement of film distribution. Teaching children with instructional films in the mainstreamed classroom poses yet another difficult problem. The problem is that the instructor must deal with the learners of wide range of academic and intellectual abilities. The educable mentally retarded learners are at disadvantage when most of the instructional decisions are made on the basis of the performance of the children of average and above average intelligence. There are not clear cut conclusions as to whether the problem in mental retardation is caused by difficulty in learning (inadequate learning of materials) or retention (rapid forgetting); however, the deficiency exhibited by educable mentally retarded learners is the inability to utilize efficient organizational strategies (Jensen & Frederickson, 1973).

Baumeister and Brooks (1981) suggested that a hierarchical memory organization might facilitate learning and recall. Ausubel (1978) proposed that deficit in cognitive structure could be removed or reduced by advance organizers. Advance organizers are introductory passages presented in advance of and at a higher level of generality, inclusiveness, and abstraction than learning material itself to give a general overview of the material. Advance organizers provide concepts under which the details in the learning passages can be subsumed to facilitate learning and retention. In recent years, however, an extention of an advance organizer to film design and utilization was found in various studies (Bunson, 1978; Lucus, 1972) in that facilitative effect was indicated. Neisworth (1968) studied learning and retention of written materials by the regular and educable mentally retarded children with a written advance organizer and Lentz (1985) used advance organizers in teaching passages to behaviorally disordered children. However, the literature search for the present study has failed to locate any experimental studies which investigated differential effect of a non-print advance organizer in the film utilization in the mainstreamed public school classroom. Therefore, this study was conducted to verify whether a non-print advance organizer

would raise the effectiveness of a sound film when it was presented prior to film showing. Specificially, this study focused on two questions. The first question was whether a non-print advance organizer could aid in greater acquisition and retention of facts and concepts acquired from a sound film than could be obtained without such a device. The second question was whether the use of a non-print advance organizer would have differentially facilitative effect on the learning by the regular and the educable mentally retarded children in the mainstreamed classroom. The non-print advance organizer in this study referred to a set of tape narrated 2"x2" color slides presented in advance of the sound film from which the slides were made to give a brief general overview of the film.

Method

Subjects

Sixty subjects participated in this study. The regular subjects (N=30) were drawn from regular classes. Their grade equivalent based on the total battery scores of the California Tests of Basic Skills (1982) was at or above their present grade placement. The educable mentally retarded subjects (N=30) were drawn from resource rooms. They were found qualified by the school system to receive resource room instruction and their I.Q. scores were within the range of fifty-five to seventy-five

according to the Wechsler Intelligence Scale for Children-Revised (1974). These subjects were receiving resource room instruction not more than fifty percent of the day and also receiving regular instruction more than fifty percent of the day. Their grade equivalent based on the California Tests of Basic Skills (1982) fell below their present grade placement. All subjects, sixth through eighth graders, were selected randomly from two middle schools of a large urban school system.

Insert Table 1 about here

Materials

Consumer Complaints: The Right Way (1976) was selected for this study. This film, eleven minutes in length, was produced by Alfred Higgins Production. This film, which gave tips on how to make consumer complaints properly and successfully in a variety of situations, was recommended for junior or middle school level students.

The non-print advance organizer consisted of two parts: one part was a set of 2"x2" color slides made from selected frames of the film, and the other part was a script written around the major concepts of the film at a higher level of generality, inclusiveness,

and abstraction than the film script itself. A panel of judges rated the script and the visuals excellent. The length of the advance organizer was two minutes and ten seconds.

To obtain a learning test to provide information about groups and treatment differences, two pilot studies were conducted with forty-two subjects for the first pilot study and with thirty-two subjects for the second pilot study. The final form of the five-option multiple choice test consisted of seventeen items yielded Kuder-Richardson-Hoyt reliability estimates of .70 for the regular subjects, and .32 for the educable mentally retarded subjects.

Procedure

A 2x3 factorial design was utilized with ability levels (regular x retarded) and presentation modes (advance organizer plus film x film only x control) as independent variables, and the posttest scores as dependent variables. All subjects were pretested one week prior to the treatment to test initial learning. The subjects were assigned at random to six treatment groups after they were selected randomly. One regular and one retarded groups viewed the advance organizer and film and took a posttest; another pair of regular and retarded group viewed the film only and took the posttest; and still another pair of regular and retarded group took the posttest without viewing the film or the advance organizer. All subjects were re-tested seventeen days later with the identical

learning test without re-viewing the film or the advance organizer. During the testing one special education teacher read the questions aloud for the subjects.

Results

A two-way ANOVA (equal n) was performed on the data obtained from the immediate retention test. Means and standard deviations of scores on the test were presented in Table 2.

Insert Table 2 about here

As shown in Table 3 no significant interaction occurred between ability levels and presentation modes ($F2, 54=1.38, p > .05$). However, the data presented in Table 3 pertaining to the main effect of ability levels indicated that there was a significant difference ($F1,54=108.99, p < .001$).

Insert Table 3 about here

Duncan's Multiple Range Test was then applied to the data to determine between which means this difference existed. As shown in Table 4 the results of this analysis indicated that there was a significant difference between the regular advance organizer group and the regular film group; the regular advance organizer

group and the regular control group; the regular film group and the regular control group; the retarded advance organizer group and the retarded control group. There was no significant difference between the retarded advance organizer group and the retarded film group; the retarded film group and the retarded control group.

Insert Table 4 about here

A two-way ANOVA (equal n) was performed on the data obtained from the delayed retention test. Means and standard deviations of scores on test were presented in Table 5.

Insert Table 5 about here

As shown in Table 6 no significant interaction occurred between ability levels and presentation modes ($F2,54=0.36, p > .05$). However, there was a significant main effect due to the presence of different presentation modes ($F2,54=14.82$, $p < .001$) and ability levels ($F1,54=108.99$, $p < .001$).

Insert Table 6 about here

Duncan's Multiple Range Test was then applied to the data to determine between which means this difference existed. The results of this analysis indicated that there was a significant difference between the regular advance organizer group and the regular control group, and difference between the regular advance organizer group and the regular control group. The difference between the means of other groups was not significant. The results were presented in Table 7.

Insert Table 7 about here

In summary, statistical analyses performed on the sixty observation revealed that on the immediate- and delayed-retention tests interaction between ability levels and presentation modes was not significant at .05 level; on the immediate-retention test significant effects were found at .01 level for the regular advance organizer group, and at .05 level for the retarded advance organizer group, and finally; on the delayed-retention test a significant effect for the regular advance organizer group was found at .05 level. It was concluded that the non-print advance organizer prepared for this study appeared to provide facilitative effect for the regular and retarded subjects in acquisition and retention of facts and concepts presented in a consumer education

film. However, ability levels did not differentially affect the learning outcomes.

Discussion

It is interesting to note that no interaction between the advance organizer and the ability levels was found. Other researchers (Lucas, 1972) have obtained similar results.

One of the results of this study which indicated the effectiveness of the advance organizer is consistent with the results obtained by Bunson (1978). However, a possibility that the better performance was simply due to being exposed to extra content material, such as an advance organizer, must not be ruled out. A meta-analysis review study indicated that an advance organizer showed lesser tendency to facilitate learning when the control group studied the learning materials for a period of time equal to the combined time the experimental group studied the advance organizer and the learning material (Kozlow, 1978).

Although the amount of learning by the regular subjects was greater than the amount of learning by the educable mentally retarded subjects, the results of this study indicated that the regular subjects and the retarded subjects learned more and retained longer the information acquired from the film in the mainstreamed public school classroom. The results of this study appear to suggest that learners from a wide range of academic and

intellectual abilities might benefit from the use of an advance organizer when it is used as part of the film presentation.

Possible implications for the instructors who work with the regular and educable mentally retarded children in a mainstreamed classroom are three: first, the advance organizer might enhance learning and retention of the film content when it is used as part of film showing; second, instructors might be relieved of the responsibility of always previewing film before showing it to class when an advance organizer is used as a means of previewing the film; and third, instructors might be able to save time substantially by previewing the advance organizer of a film instead of previewing the film in its entirely.

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Table 1

Characteristics of the Subjects

	Regular Group[a]			Retarded Group[a]		
	A	B	C	A	B	C
Mean I.Q.*	-	-	-	71.5	70.7	68.3
S.D.	-	-	-	6.7	3.4	6.6
Mean grade equivalent+	9.1	8.5	8.2	3.8	3.4	3.7
Mean C.A. (months)	151.8	155.3	155.9	167.6	166.7	167.2
S.D.	10.3	14.5	11.8	12.3	10.6	10.7
Whites	7.0	8.0	7.0	8.0	5.0	6.0
Blacks	3.0	2.0	3.0	2.0	5.0	4.0
Males	7.0	5.0	5.0	4.0	6.0	5.0
Females	3.0	5.0	5.0	6.0	4.0	5.0

[a] n = 10 for each group.

*Wechsler Intelligence Scale for Children-Revised (1974).

+California Tests of Basic Skills (1982).

A: Advance organizer/film group (regular subjects).

B: Film only group (regular subjects).

C: Control group (regular subjects).

D: Advance organizer/film group (retarded subjects).

E: Film only group (retarded subjects).

F: Control group (retarded subjects).

Table 2

Means and Standard Deviations of Immediate Retention Test

	Group[a]		
	A	B	C
Regular Ss	X = 13.50	X = 11.60	X = 9.60
	SD= 1.78	SD= 1.27	SD= 1.51
Retarded Ss	X = 8.00	S = 6.70	X = 5.90
	SD= 2.21	SD= 2.00	SD= 1.52

[a] n = 10 for each group.

A: Advance organizer/film groups.

B: Film only groups.

C: Control groups.

Table 3

Results of Two-Way Effects ANOVA on Immediate Retention Test

Source of Variance	SS	df	ms	F
Ability levels	331.35	1	331.35	108.99***
Presentation modes	90.13	2	45.07	14.82***
Ability x modes	8.40	2	2.20	1.38
Within groups	164.30	54	3.04	
Total	594.18	59		

***$p < .001$

Table 4

Application of Duncan's Multiple Range Test to Differences Between Six Treatment Means on Immediate Retention Test

Treatment[a]	Means	X6	X5	X4	X3	X2	X1
A	X6 = 5.9	-	0.8	2.1*	3.7**	5.7**	7.6**
B	X5 = 6.7		-	1.3	2.9**	4.9**	6.8**
C	X4 = 8.0			-	1.6	3.6**	5.5**
D	X3 = 9.6				-	2.0*	3.9**
E	X2 =11.6					-	1.9*
F	X1=13.5						-
		Wr (.05) = 1.6		1.6	1.7	1.7	1.8
		Wr (.01) = 2.1		2.2	2.2	2.3	2.3

[a] n = 10 for each group.

*$p < .05$

**$p < .01$

A: Control (retarded Ss).

B: Film only (retarded Ss).

C: Advance organizer/film (retarded Ss).

D: Control (regular Ss).

E: Film only (regular Ss).

F: Advance organizer/film (regular Ss).

Table 5

Means and Standard Deviations of Delayed Retention Test

	Group[a]		
	A	B	C
Regular Ss	X = 13.00	X = 11.10	X = 10.00
	SD= 3.20	SD= 1.37	SD= 1.47
Retarded Ss	X = 6.70	X = 5.90	X = 4.80
	SD= 2.45	SD= 1.73	SD= 2.74

[a] n = 10 for each group.

A: Advance organizer/film groups.

B: Film only groups.

C: Control groups.

Table 6

Results of Two-Way Fixed-Effects ANOVA on Delayed Retention Test

Source of Variance	SS	df	ms	F
Ability levels	465.375	1	465.38	90.54***
Presentation modes	60.234	2	30.12	5.86**
Ability x modes	3.674	2	1.84	0.36
Within groups	277.500	54	5.14	
Total	806.783	59		

**$p < .01$

***$p < .001$

Table 7

Application of Duncan's Multiple Range Test to Differences Between Six Treatment Means on Delayed Retention Test

Treatment[a]	Means	X6	X5	X4	X3	X2	X1
A	X6 = 4.8	-	1.1	1.9	5.2**	6.3**	8.2**
B	X5 = 5.9		-	0.8	4.1**	5.2**	7.1**
C	X4 = 6.7			-	3.3**	4.4**	6.3**
D	X3 = 10.0				-	1.1	3.0**
E	X2 = 11.1					-	1.9
F	X1 = 13.0						-
		Wr (.05) = 2.1	2.2	2.3	2.3	2.3	
		Wr (.01) = 2.7	2.8	2.9	3.0	3.0	

[a] n = 10 for each group.

**$p < .01$

A: Control (retarded Ss).

B: Film only (retarded Ss).

C: Advance organizer/film (retarded Ss).

D: Control (regular Ss).

E: Film only (regular Ss).

F: Advance organizer/film (regular Ss).